



Ottawa's Great Forest: The South March Highlands

South March Highlands – Carp River Conservation Inc.

[All photos in this presentation were taken in or of the South March Highlands]

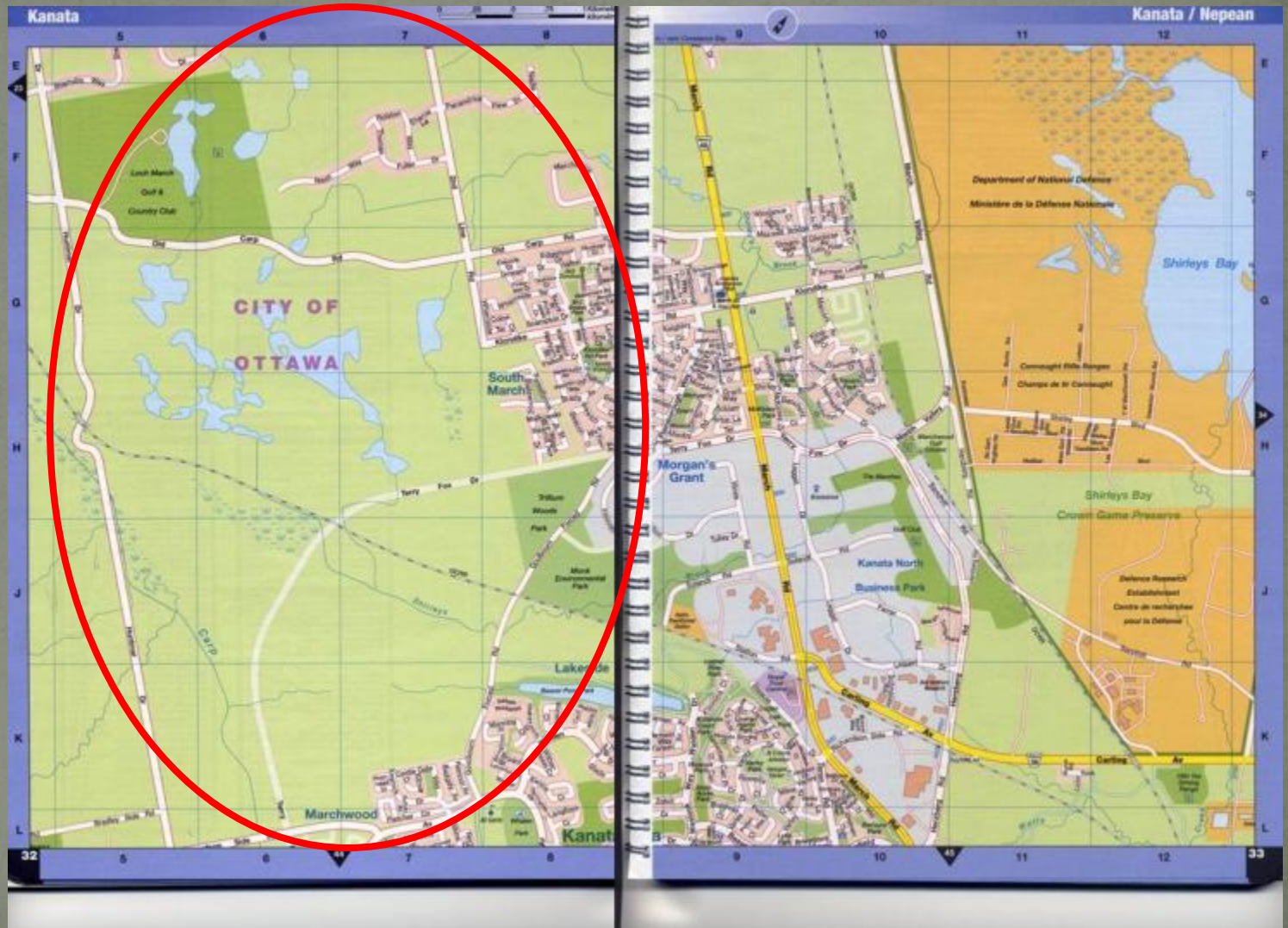
Where are the South March Highlands?

South of
March Road

East of
Huntmar

West of
March Road

North of
Where we
Are Now



A “Wild Island” Inside Ottawa

10,000 Years Old

3x Larger Than Stanley Park



30 Eco-Types
Of Vegetation

Visible Canadian
Shield

10 Distinct
Habitats

National Capital's 3 Major Eco-Corridors



Transit Systems To The Wild Island



SMH is the Aquifer for North Kanata



Hydrology Affects 3 Sub-Watersheds

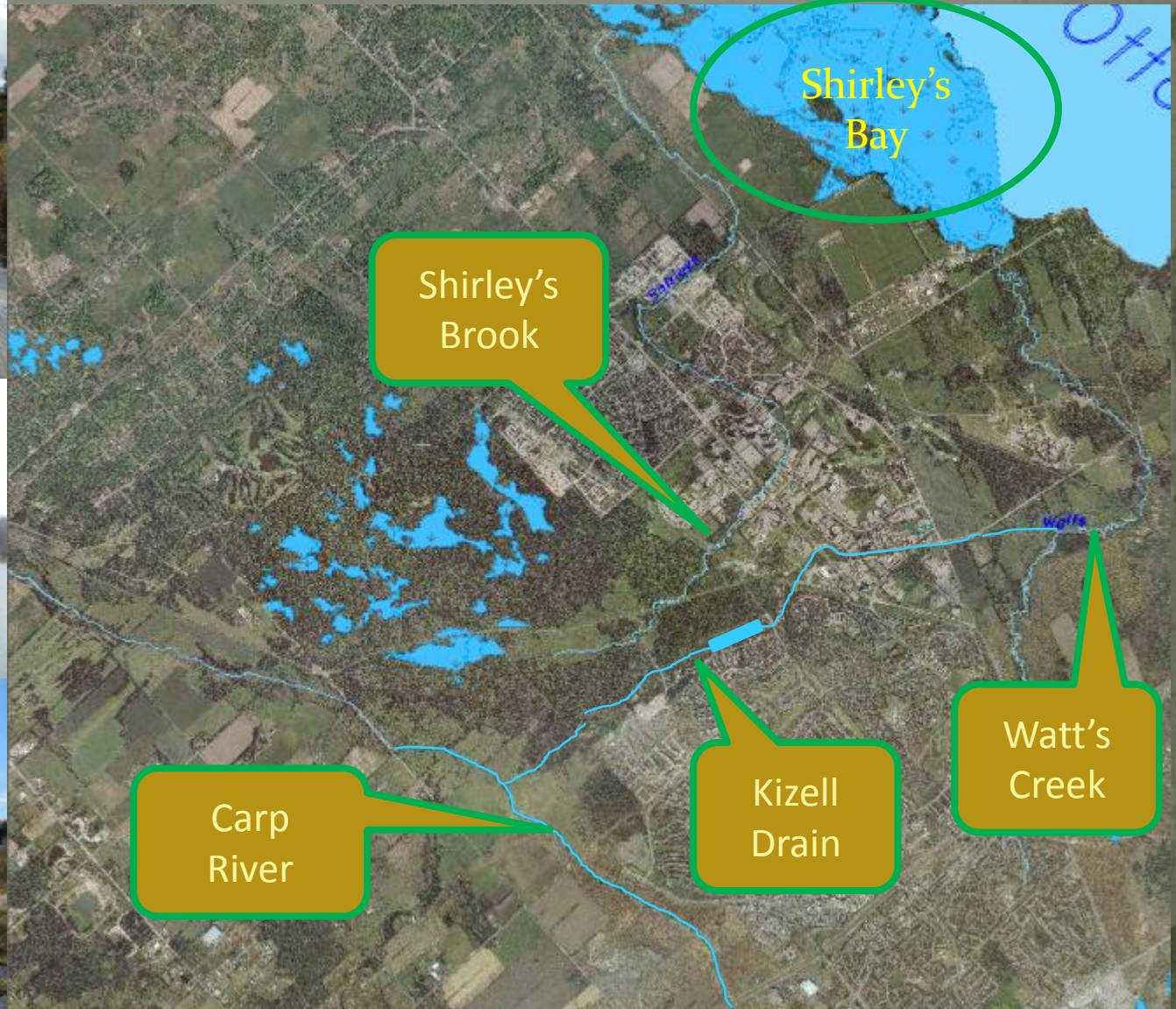
Klondike Pond



Goose Pond



Heron Pond



Rich GeoHeritage – Shield Rock is Extensive



Shield Rock
Is 1 Billion
Years Old

LEGEND

- TERRY FOX DRIVE SITE
- ROADWAY
- RIVER OR STREAM
- WATERBODY
- ▨ FLOODPLAIN COMPENSATION AREA

SURFICIAL GEOLOGY

- 1a TILL, PLAIN WITH LOCAL RELIEF < 10 ft
- 1b TILL, DRUMLINIZED
- 1c TILL, HUMMOCKY TO ROLLING WITH LOCAL RELIEF 10 TO 10 ft
- 2 ICE CONTACT STRATIFIED DRIFT, GRAVEL & SAND
- 3 OFFSHORE MARINE DEPOSITS: CLAY, SILTY CLAY & SILT
- 3.g OFFSHORE MARINE DEPOSITS: CLAY, SILTY CLAY & SILT (GULLIES & RAVINES)
- 4 OFFSHORE MARINE DEPOSITS: CLAY & SILT UNDERLYING EROSIONAL TERRACES
- 4.g OFFSHORE MARINE DEPOSITS: CLAY & SILT UNDERLYING EROSIONAL TERRACES (GULLIES & RAVINES)
- 5 DELTAIC AND ESTUARY DEPOSITS: MEDIUM TO FINE GRAINED SAND
- 5.g DELTAIC AND ESTUARY DEPOSITS: MEDIUM TO FINE GRAINED SAND (GULLIES & RAVINES)
- 6a NEARSHORE SEDIMENTS: GRAVEL, SAND & BOULDERS
- 6b NEARSHORE SEDIMENTS: FINE TO MEDIUM GRAINED SAND
- 7a ALLUVIAL DEPOSITS: SILTY SAND, SILT, SAND & CLAY
- 7b ALLUVIAL DEPOSITS: SILTY SAND, SILT, SAND & CLAY (GULLIES & RAVINES)
- 7c ALLUVIAL DEPOSITS: MEDIUM GRAINED STRATIFIED SAND WITH SOME SILT
- 7.d ALLUVIAL DEPOSITS: MEDIUM GRAINED STRATIFIED SAND WITH SOME SILT (GULLIES & RAVINES)
- 8 ORGANIC DEPOSITS: MUCK & PEAT
- 9 DUNE
- 9.g DUNE (GULLIES & RAVINES)
- 10 LANDSLIDE AREA
- 10.g LANDSLIDE AREA (GULLIES & RAVINES)
- 11 BEDROCK: INTRUSIVE & METAMORPHIC
- 12 BEDROCK: LIMESTONE, DOLOMITE, SANDSTONE & LOCAL SHALE
- 13 BEDROCK: LIMESTONE, DOLOMITE, SANDSTONE & LOCAL SHALE (GULLIES & RAVINES)
- 14 WATER

NOTE:
The figure is to be read in conjunction with the accompanying
Golder Associates Ltd. report No. 06-1121-0027

REFERENCE:
BELANGER, J. R., URBAN GEOLOGY OF THE NATIONAL CAPITAL AREA,
GEOLOGICAL SURVEY OF CANADA, OPEN FILE D3258, 2001
Projection: Transverse Mercator. Datum: NAD 83. Coordinate System: UTM Zone 18



PROJECT	TERRY FOX DRIVE PERMIT TO TAKE WATER
TITLE	SURFICIAL GEOLOGY

Only Location In Ottawa with Exposed Canadian Shield



One of Many Locations Where Shield
is Magnificently Displayed



Impressive Even after “Development”

Shield Rock is Always Close To Surface



Max Depth
of Shield is
1m

Any Development
Requires Blasting



Distinctive and Unique GeoMorphology



Heron Pond's Sandstone Barren Was Once Polished Like a Mirror

500m Long
Nepean
Sandstone
Pavement
Barren



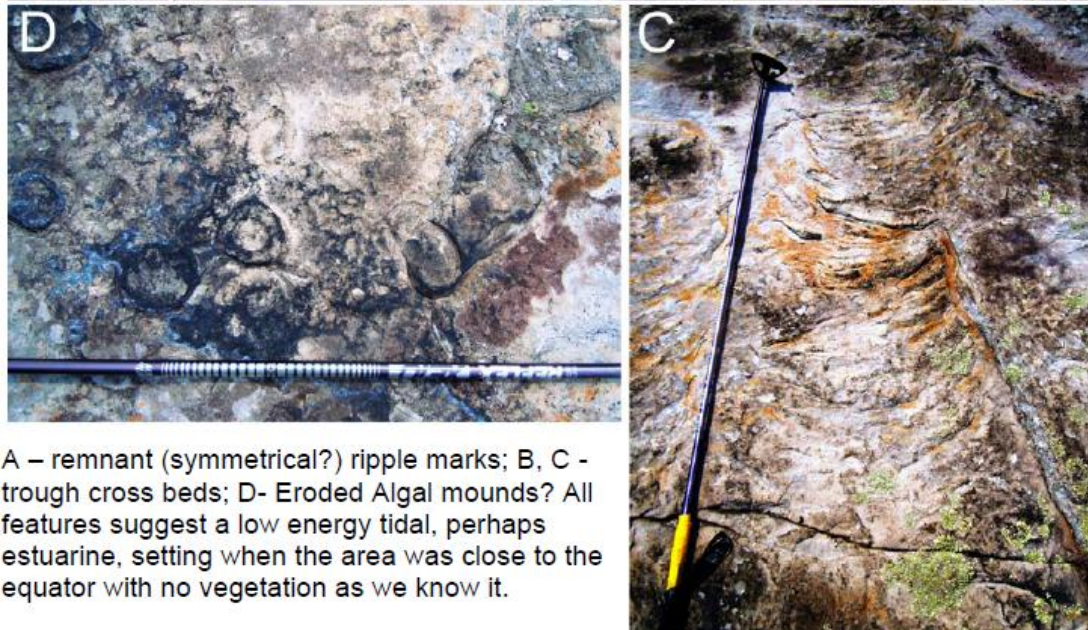
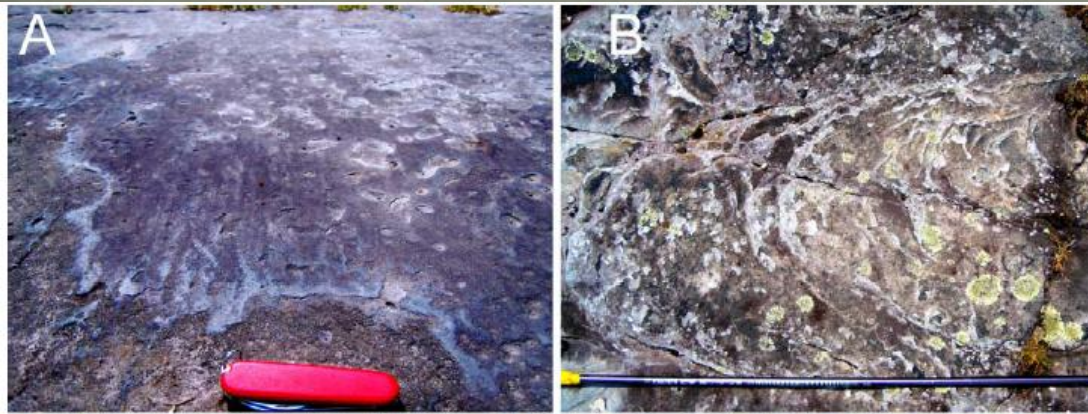
Reminders of Ancient Glaciers



In area B, glacial chatter marks (above); striations (top right) and crescent gouges are evident. Only chatter marks and crescent gouges provide ice movement direction. The striated surface retains a remnant mm-thick glacial pavement of semi-fused quartz grains.



Ancient Sea on Display

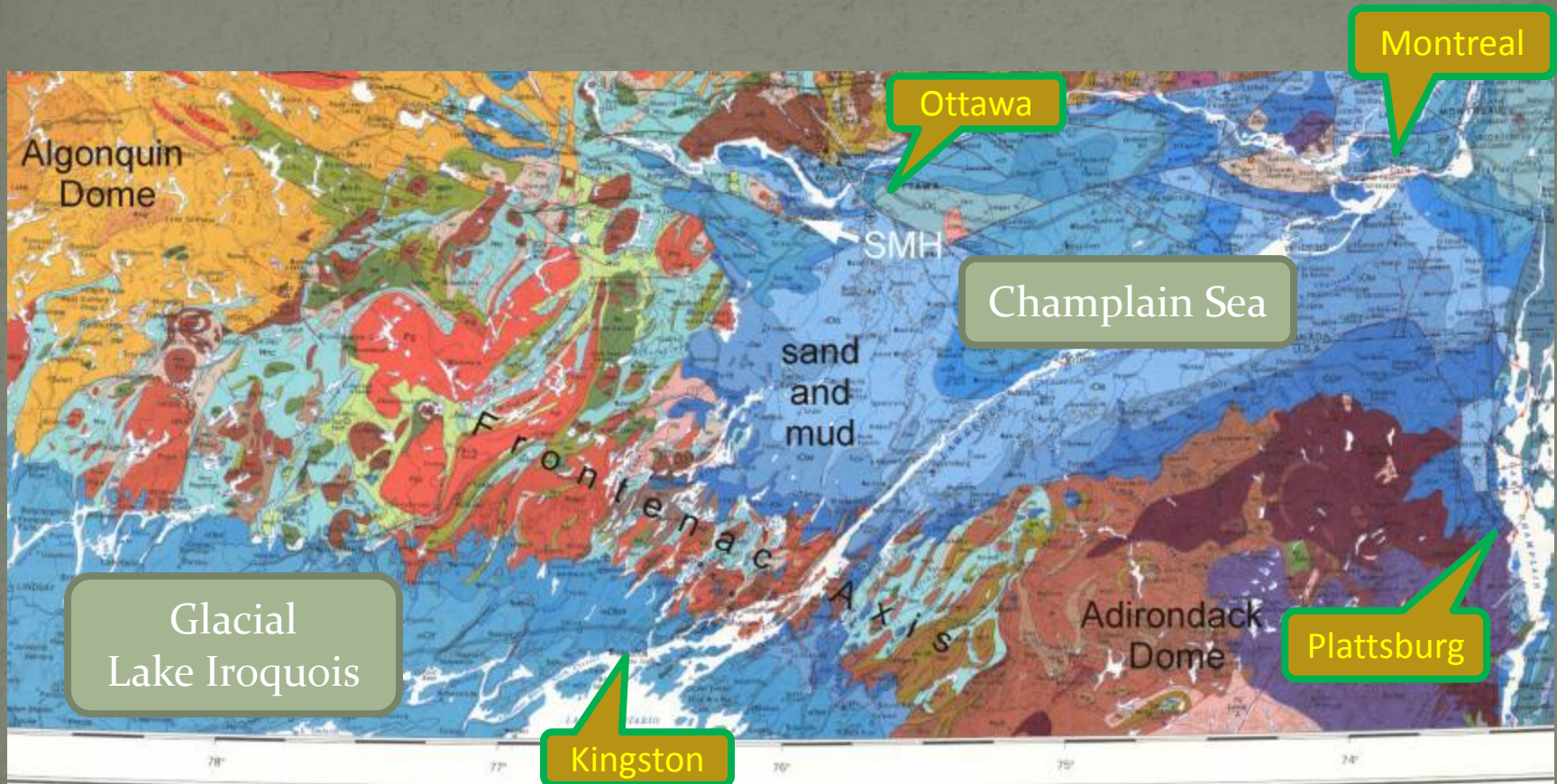


A – remnant (symmetrical?) ripple marks; B, C - trough cross beds; D- Eroded Algal mounds? All features suggest a low energy tidal, perhaps estuarine, setting when the area was close to the equator with no vegetation as we know it.

Outlets for Ancient Spring Waters Now Calcified

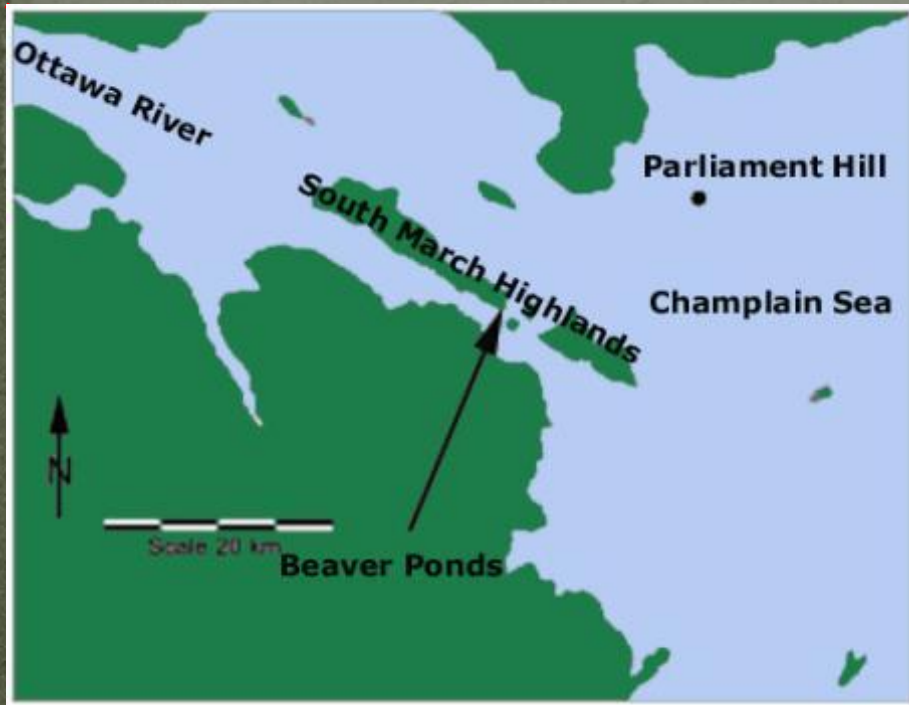


The Original Turtle Island in the Champlain Sea?



The SMH was an island at a time when Frontenac Axis geological formation separated Glacial Lake Iroquois (precursor to Lake Ontario) from salt waters of the Champlain Sea 8,000 - 12,000 years ago

Ancient Civilization Populated Shoreline of Champlain Sea & Lampsilis Lake



"... the rocky upland areas ... should be considered to be of high potential for occupation by early postglacial sea mammal hunters along subsequent shorelines as local sea levels dropped from about 120 m above current sea level at around 11,000 years ago, to 90 meters above sea level at some time around 9,000 years ago. "

Dr. Robert McGhee – Retired Curator Canadian Museum of Civilization

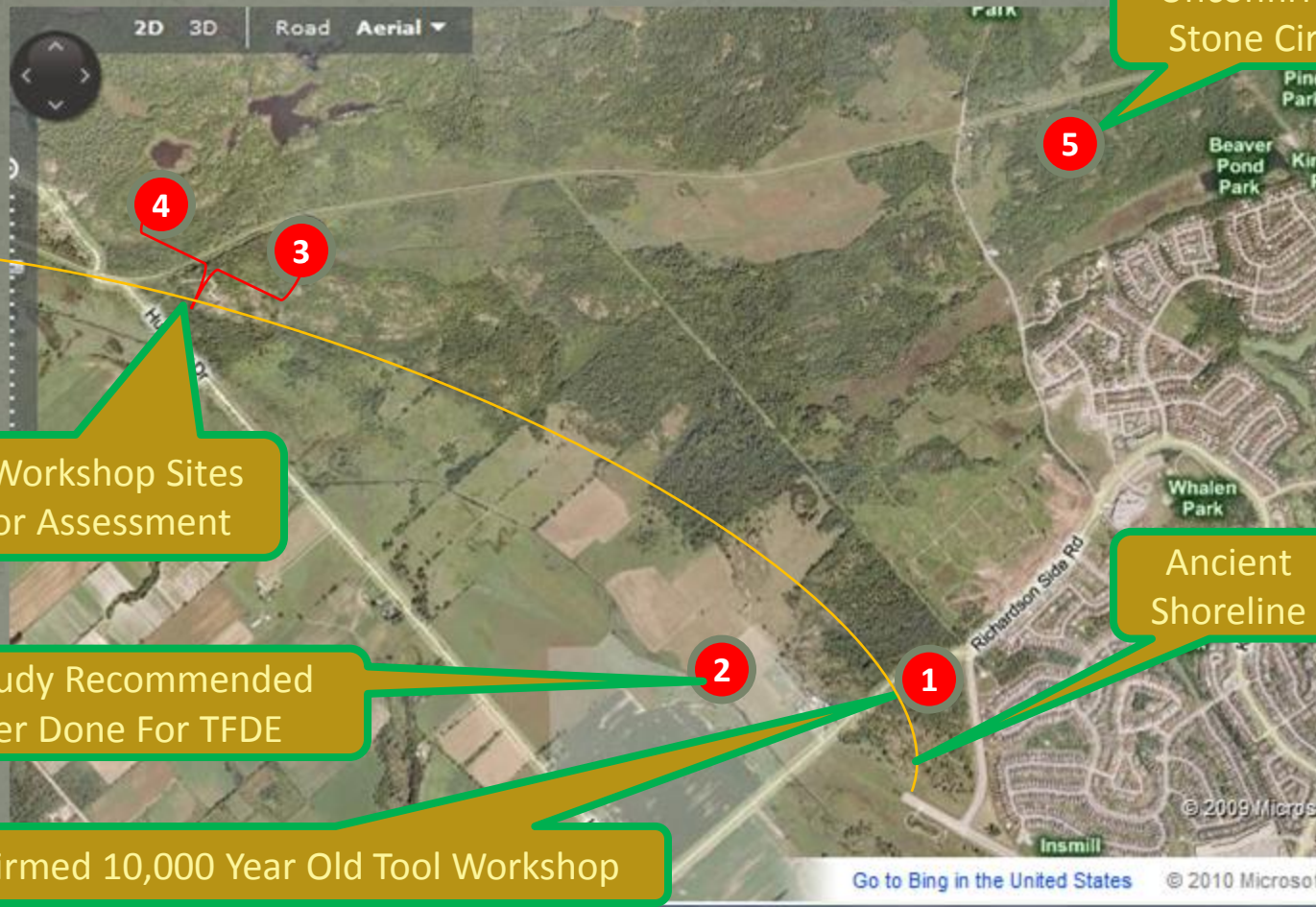


"Several centuries later, circa 9,800 BCE, a huge freshwater table, Lampsilis Lake, replaced the Champlain Sea in the Ottawa Valley and throughout the St. Lawrence lowlands...we estimate the level of Lampsilis Lake in the central Ottawa Valley ... to have been roughly 70 meters. "

*Dr. Marcel Laliberte – National Capital Commission
Archaeological Resource Potential [1998]*

**Anything below Elevation of 90 m
is submerged**

National Historic Value Known Archaeological Sites In SMH



8,000 – 10,000 Year Old Chopping Tool



Bi-Face clearly developed by hand and consistent with Late Paleo- Early Archaic Indian tool technology

Found at location (1) at elevation where approximate age is 8,000 - 10,000 BCE

Still sharp !



500 Generation Old – Chiselled Core



Tool marks clearly developed by hand

Quartzite indicates Paleo-Archaic Indian

Found at location (3) workshop

Elevation indicates approximate age
as 10,000 BCE



Ancient Stone Tool Twice As Old As Stonehenge or Egyptian Pyramids



Pyramidal shape developed by hand

Quartzite material indicates Late Paleo-Indian origin

Found at location (4) workshop

Elevation (115 m) consistent with approximate age of 10,000 BCE

Euro-Canadian Cultural Sites Too



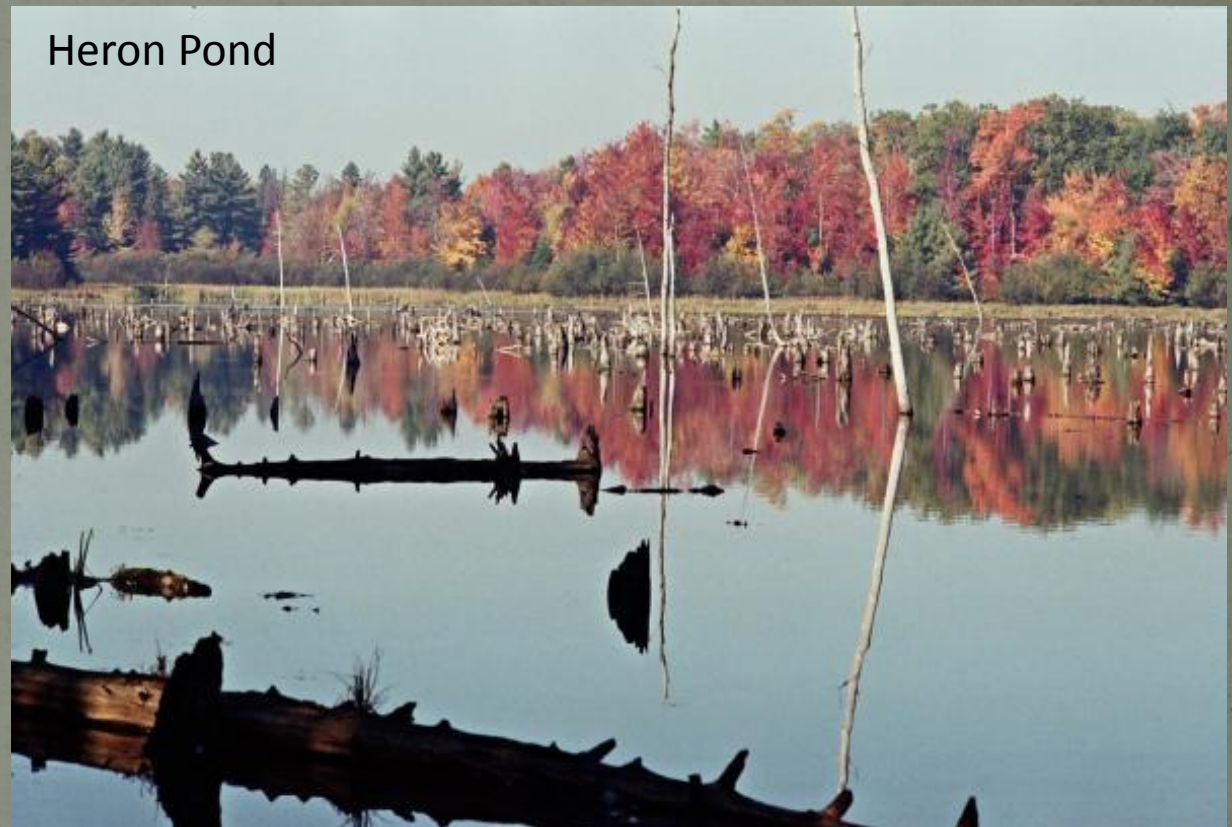
**McMurtry's Tannery
(Circa 1860)**

Also:

- **Several 19th Century homestead sites dating back to 1820 (as old as Pinhey's Point)**
- **Richardson Stone House dating back to approx. 1860 (as old as the Log Farm)**
- **A Feldspar Mine dating approximately to 1919-1921 (unique in Ottawa)**

SMH Saves March Township from 1870 Fire

- 1870 Forest Fire destroyed most of Ottawa Valley
- Highlands and Wetlands of SMH provided critical firebreak
- Signs of that Fire can still be seen today
- Several trees survived the great Fire and are over 130 years old



Old Growth Commonly Found

MNR Technical Handbook:
“Old Growth” (pages 45-46)

- ✓ Large proportion of trees in older age classes
- ✓ Many 120 – 140 years old
- ✓ Broad spectrum of tree sizes with some very tall trees
- ✓ Uneven canopy due to fallen trees
- ✓ Abundant fallen logs various stages of decomposition
- ✓ Forest supports a high diversity of wildlife species



10,000 Year Old Transition Zone

Coniferous
Meets
Deciduous



Natural Heritage: Densest Bio-Diversity In Ottawa

[Brunton, 2008]

Unknown Number of
Insect, Fungi &
Bryophyte Species

Over 679 Species:
440 Native Plants
164 Avian
75 Mammals, Fish,
Amphibians, Reptiles

All Within an
Area of 3 x 4 km



Just Some of the Wildlife Documented

- Red Wolf, Coyote
- Canada Lynx, Red Fox
- Black Bear
- Fischer, Long-tail Weasel
- Beaver, Muskrat
- Ermine, River Otter, Mink
- Snoeshoe Hare, Cottontail Rabbit
- Meadow Jumping Mouse, Deer Mouse, House Mouse, White Footed Mouse
- Meadow Vole, Star-Nosed Mole, Southern Red-Backed Vole
- Barred Owl, Eastern Screech Owl, Great Grey Owl, Great Horned Owl, Long Eared Owl, Northern Saw-whet Owl
- Cooper's Hawk, Red Tail Hawk, Red Shouldered Hawk, Sharp Skinned Hawk, Broad Winged Hawk
- Northern Flying Squirrel
- Silver Haired Bat, Hoary Bat, Big Brown Bat, Little Brown Bat
- Common Shrew, Northern Short-tailed Shrew, Pygmy Shrew, Smokey Shrew
- Blanding's Turtle, Snapping Turtle, Eastern Painted Turtle, Musk Turtle



Largest Deer Wintering Yard In Ottawa

- 875 ha deer habitat



Provincially Significant Life Science Area

895 Hectares
Rated ANSI

Highest Floristic
Diversity of Any
Natural Area in
Ottawa

5.08 = Highest
Coefficient of
Conservation in
Ottawa

440 Species
Native Vascular Plants

26 Species
Traditionally Used for
Native Medicine

2 Endangered
6 Provincially Rare
64 Regionally Rare
50 Uncommon
Native Vascular Plants



Trillium Woods is Part of SMH



“Trillium Woods, which is like a chunk of the Gatineau in the urban landscape of Ottawa, with rich plant and animal life found nowhere else in the urban part of the City”

Ottawa Urban Natural Areas Environmental Evaluation
[Muncaster & Brunton, 2008]

+ Provincially Significant Wetland Complex

114 Hectares
Rated ANSI

164 Avian Species
Observed

1 Endangered
4 Threatened
5 Special Concern
30 Regionally Rare
Avian Species

Shirley's Pond

136 Nesting Bird Species in the SMH



Undocumented Number of Vernal Pools

Over 26 identified species of
Herpetofauna

Monarch Butterfly is Species-at-Risk
in South March Highlands

3 Threatened Species
2 Special Concern



Yet No Comprehensive Biological Survey Ever Done

Wildlife
Movement
Only Studied
In Winter

No SAR
Population
Studies

No Study of
Non-Vascular
Plants

No Study of
Mosses &
Lichens

No Study of
Funghi

No Study of
Insects



20 Documented Species At Risk

Endangered or Threatened

- American Ginseng
- Butternut
- Loggerhead Shrike
- Bobolink
- Whip-poor-will
- Golden Winged Warbler
- Olive Sided Flycatcher
- Western Chorus Frog
- Blanding's Turtle
- Eastern Musk Turtle
- Chimney Sweep

Special Concern

- Bridle Shiner
- Short Eared Owl
- Black Tern
- Common Nighthawk
- Snapping Turtle
- Eastern Milksnake
- Monarch Butterfly
- Bald Eagle
- Red Headed Woodpecker



18 Candidate SAR Also Found in SMH

- Evening Grosbeak
 - Eastern Wood Peewee
 - Wood Thrush
 - Bank Swallow
 - American Bullfrog
 - American Kestrel
 - Belted-Kingfisher
 - Field Sparrow
 - Eastern Red-Backed Salamander
 - Blue-Spotted Salamander
 - American Toad
 - Bluntnose Minnow
 - Boreal Chickadee
 - Killdeer
 - Midland Painted Turtle
 - Green Frog
 - Wood Frog
 - Northern Two-Lined Salamander
- 
- A photograph of a Midland Painted Turtle swimming in a pond. The turtle is positioned in the center of the frame, facing left. Its shell is dark with a pattern of lighter spots and lines. The water is a clear, light blue, and the turtle's reflection is visible on the surface. The background shows a slightly out-of-focus shoreline with some vegetation.

11 Species Extirpated By Development

- Cathcart's Woodsia
- Oregon Woodsia
- Spiny Coon-tail
- Adder's-tongue Fern
- Back's Sedge
- Large Duckweed
- Long-spurred Violet
- Showy Orchis
- Southern Arrow-wood
- Strawberry-blight
- Virginia Spring Beauty



Development Eats Away at Ottawa's Great Forest



Impact of Winter Tree Clearing on Wildlife



- Denning mammals killed by tree-cutting machines or freeze-to-death due to loss of shelter



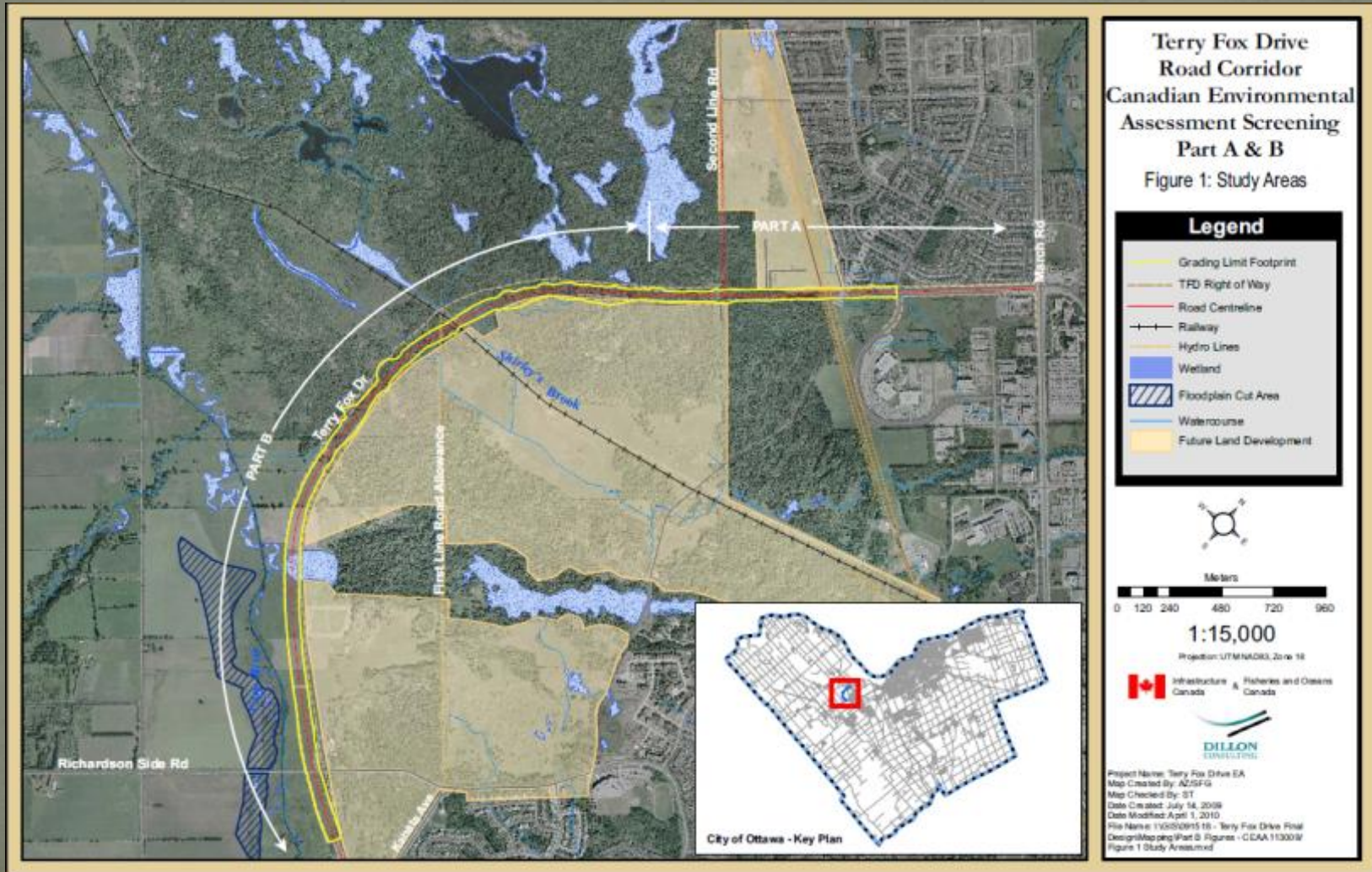
- 2/3 of Porcupine Population estimated killed in Beaver Pond Forest due to Winter Clearcut



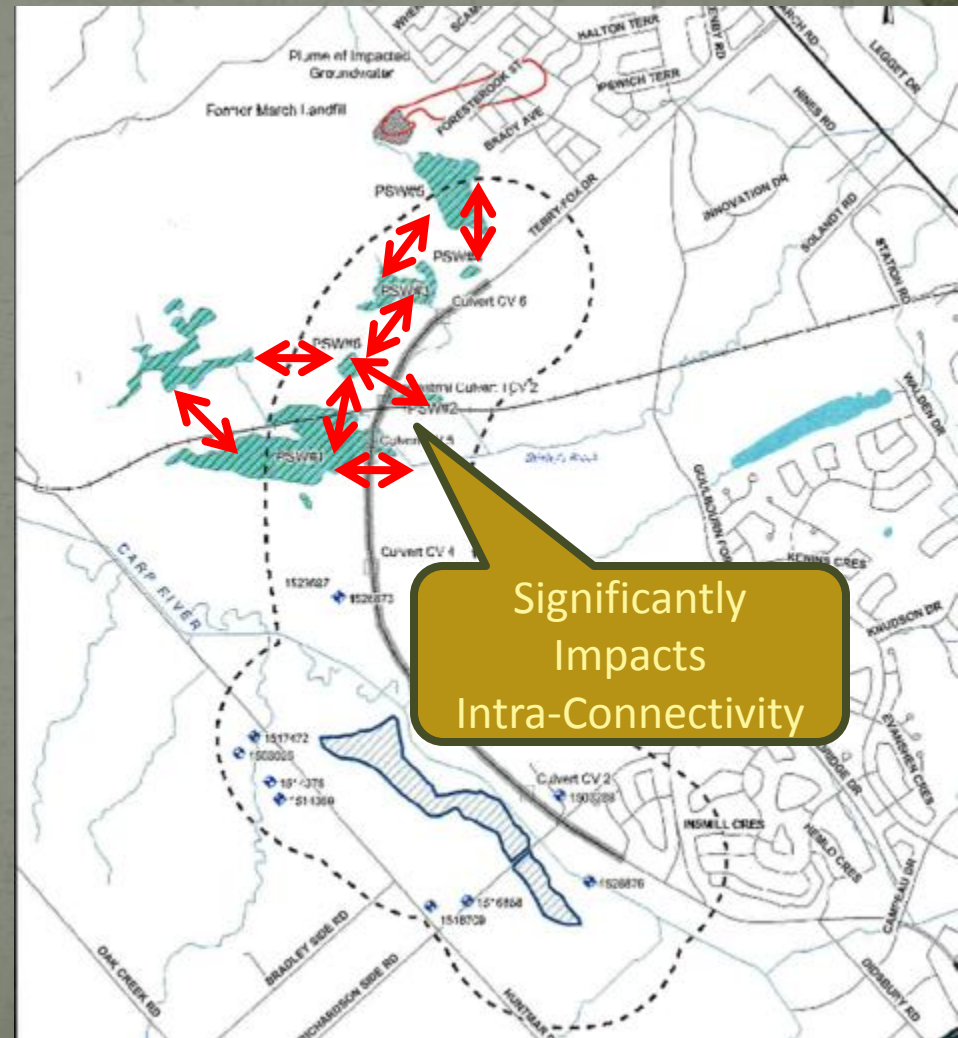
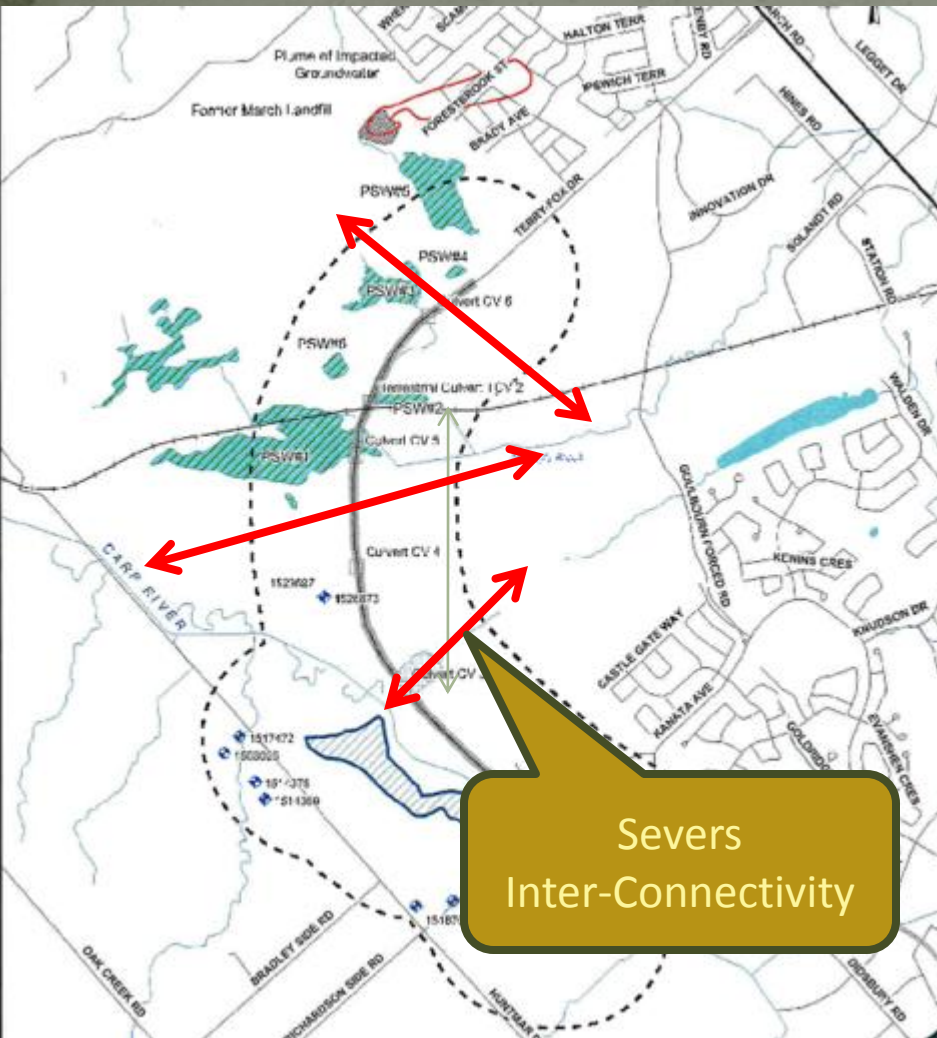
- Hibernating amphibians & reptiles are crushed by heavy equipment



Terry Fox Drive Extension Severs SMH by 1/2



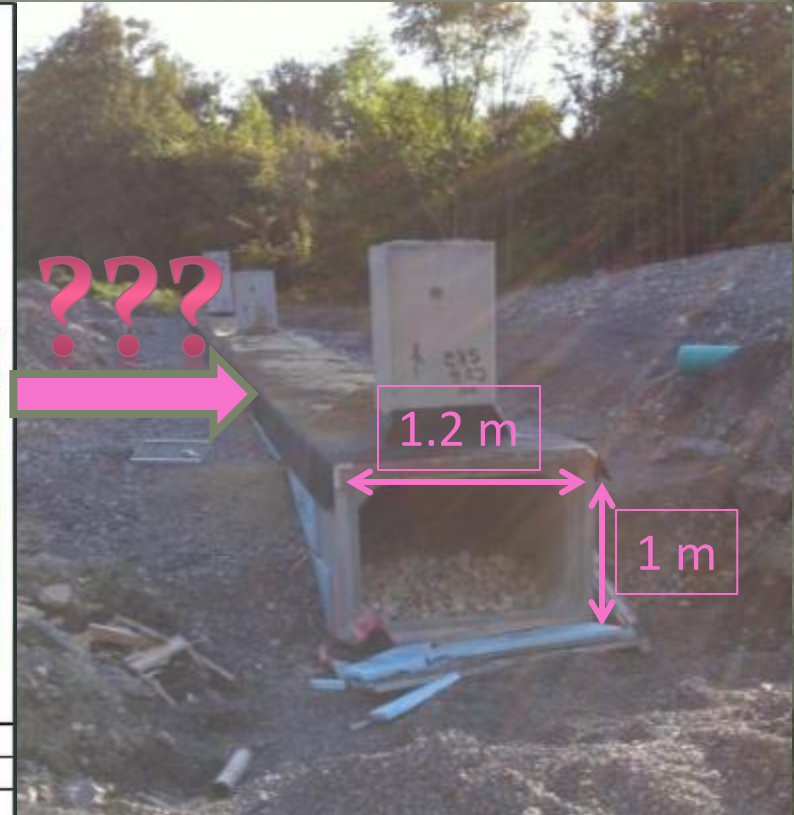
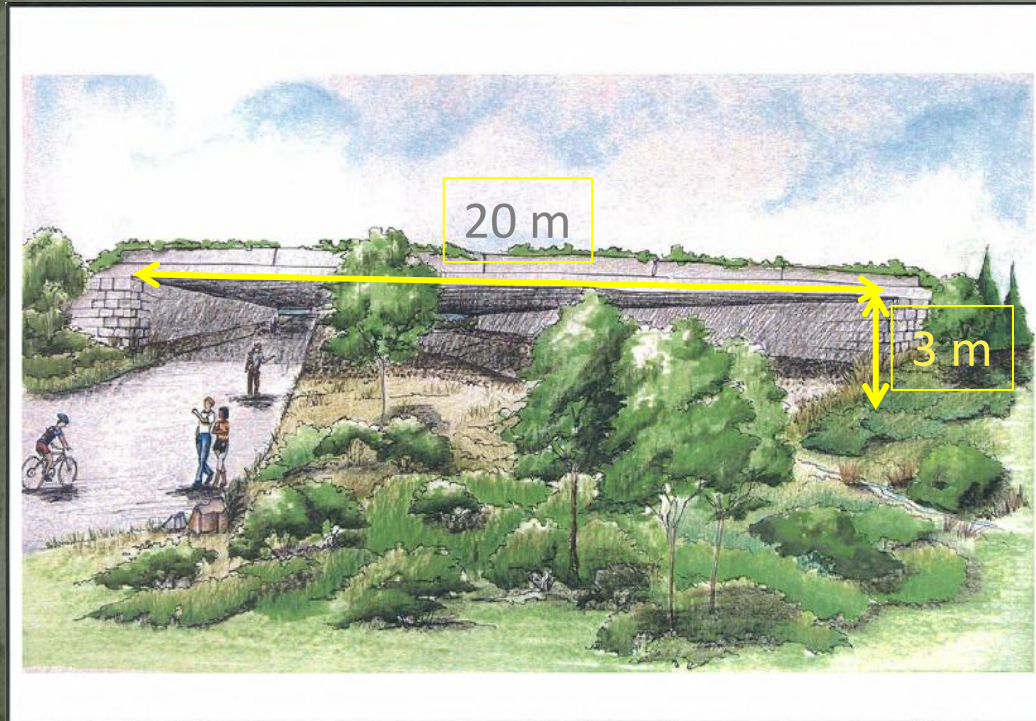
Widely Accepted That TFDE Severs Eco-Connectivity



Unmitigated Environmental Impact

- 2007 EA Addendum
 - Promised Eco-passages & No Fencing
- 2010 As-Built Road
 - Eco-passages replaced by low tunnels
 - Fencing creates “Berlin Wall”

Wilderness functions inside the arc of TFDE are choked off from rest of the wild forest



Current Status of Development

KNL Phase 7
(Future)

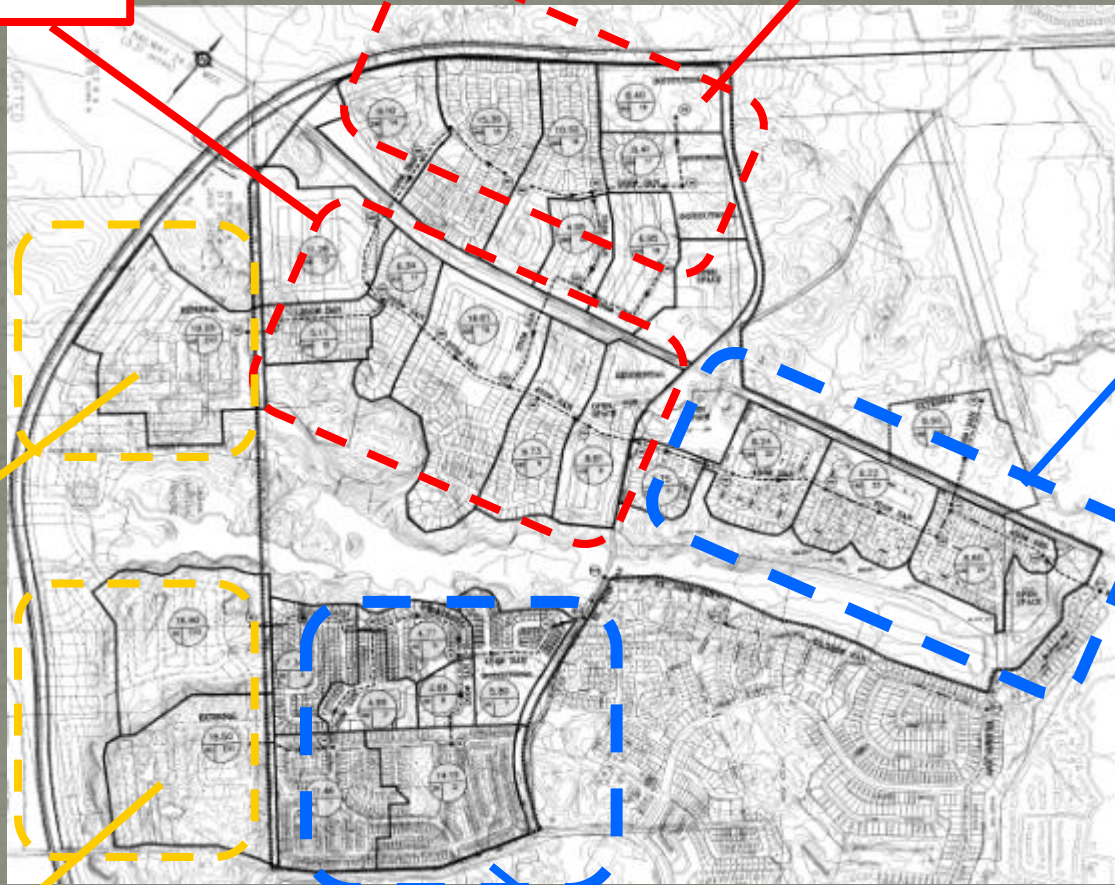
KNL Phase 8
(Future)

KNL Phase 9
Clearcut
(Beaver Pond)

Richardson
Ridge
Phase II
(Regional
Group)

Richardson
Ridge
Phase I
Clearcut
(Regional
Group)

Urbandale & Richcraft
In Progress
Phases 1 - 6



Green Infrastructure is Multi-Purpose

- Wetland Water Storage & Retention
 - Equivalent Storm Water Retention & Management would cost \$Millions to replace
- Replenishment of Natural Resources
 - \$2 M / year for cleaning Air & Water, pollination, resisting invasive species [based on Suzuki Foundation estimate]
- Educational & Artistic Value
 - \$0.3 M / year reduced travel cost for school field trips
- Recreational & Eco-Tourism Value
 - \$25 M / year increased economic value from 1% of 7.8 M visitors staying 1 extra day to explore Ottawa's Great Forest



“Developed” Infrastructure is Single Purpose

- “Development” transforms multi-purpose landscape to a single purpose
 - Housing
 - Commercial, etc.
- “Developed” Infrastructure must be rebuilt / repaired periodically
 - Roads, Bridges
 - Subdivisions
 - Storm Water Management Facilities
 - Construction = Temporary job creation
- Green Infrastructure is perpetually replenished by nature
 - Forests, Wetlands, Streams & Ponds
 - Eco-tourism = Permanent jobs
 - Green Infrastructure continues to deliver clean Air and Water that would otherwise be lost by “development”



Terry Fox Dr
July 24, 2009

Will You Help Defend This Forest?



Located Just Beyond Current Greenbelt Corridor

SMH Mistakenly Excluded from 3 working Concepts for Greenbelt Master Plan



“Shepherd’s Hook” Extends Greenbelt



Alternative Vision of Eco-Corridors Revitalizing The Emerald Necklace



11 Eco-Corridors
Linking
7 Ecological
Reservoirs

Questions About South March Highlands?

